

## Fuel, oil purification systems. UVR type



*GlobeCore* UVR units are designed for regeneration and purification of mineral oils and fuels.

The *GlobeCore* UVR process is a proprietary *GlobeCore* technology unmatched anywhere in the world. The *GlobeCore Process* is unique in that it can regenerate practically any mineral oil or fuel.

The *GlobeCore* UVR process can be readjusted for virtually any type of oil or fuel. There is no need to change the type of machine in order to switch to processing a different type of material. The UVR unit purifies and clears dark diesel fuel and heavy fuel oil. It removes sulfur and hydrogen sulfide compounds. It easily clears gas condensate and removes tar and contaminants. It deodorizes the processed material by removing hydrogen sulfide.

Oil products remain clear and stable long after the regeneration process.

*GlobeCore* regeneration units have successfully processed transformer oil, turbine oil, industrial oils, HFO and diesel fuel in dozens of facilities around the globe.

*GlobeCore* units can be operated anywhere. They do not require special placement, they are

simple to transport and generate virtually no noise.

*GlobeCore* UVR units use a special sorbent, combining low cost and high performance, making the used oil products in many cases superior to new.

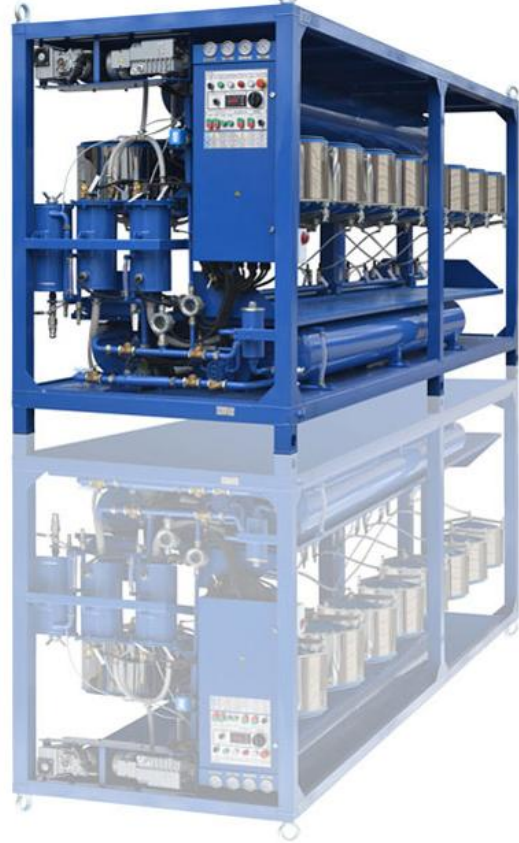
### *These units come in one of the three designs:*

- General industry frame mounted
- General industry containerized
- Explosion proof (installed in a container with rolling doors)

UVR 450/6 Framed



UVR 450/16 Framed



UVR 450/16  
Containerized



UVR 450/16  
Explosion proof

## GlobeCore Oil Regeneration Units

Unit designation	Processing rate, m <sup>3</sup> /hour	Processed oil parameters <sup>1)</sup>	Process
UVR-450/6	0.08	- ISO 4406 purity class at least -/14/12 - moisture content, ppm, max – 30 - acid number, mg KOH/g – 0.01 - corrosive sulfur - absent - interfacial tension, N/m, at 25°C - 45 - dissipation factor at 90°C - 0.001	Bleaching clay removes oil degradation products and acidic compounds from the oil. The oil is made clear, oxidation resistance is improved, and gas solubility is reduced.
UVR-450/16	0.2		
UVR-450/16 C	0.2		
UVR-450/16 EX	0.2		

Notes:

- <sup>1)</sup> The parameters can be achieved if the initial oil parameters are:
  - moisture content – below 0.02% (200 g/t)
  - temperature – above 0°C
  - ISO 4406 purity class -/18/16
  - acid number, mg KOH/g, max – 0.2

#	Name of parameters	Value			
<b>1</b>	<b>Regeneration productivity, m<sup>3</sup>/h:</b>	<b>UVR-450/6</b>	<b>UVR-450/16</b>	<b>UVR-460/16(C)</b>	<b>UVR-460/16(V)</b>
	-transformer oil	0,1	0,28-0,3	0,28-0,3	0,3
	-turbine oil	0,1	0,28-0,3	0,28-0,3	0,3
	-industrial oil	0,15	0,28-0,3	0,28-0,3	-
	-dark heating oil (crude oil)	0,25	0,6-0,8	0,6-0,8	0,6-0,8
	-dark diesel oil	0,25	0,6-0,8	0,6-0,8	0,6-0,8
	-dark gasoline	0,30	0,7-1,1	0,7-1,1	0,7-1,1
<b>2</b>	<b>Regenerating powder consumption in % from the weight of cleaning product</b>				
	-transformer oil	3-17	3-17	3-17	3-17
	-turbine oil	3-17	3-17	3-17	3-17
	-industrial oil	3-17	3-17	3-17	-
	-dark heating oil (crude oil)	2-15	2-15	2-15	5-20
	-dark diesel oil	1-7	1-7	1-7	1-7
	-dark gasoline	1-5	1-5	1-5	1-5
<b>3</b>	<b>The weight of regenerating powder for filling</b>				
	-one regeneration module, kg	20(35)	20(35)	20(35)	20(35)
	-all regeneration modules, kg	200 (300)	400 (600)	400 (600)	400 (600)
<b>4</b>	<b>Loss (oil product) in % from initial volume (that that remains in a sorbent)</b>				
	-transformer oil	1-6	1-6	1-6	1-6
	-turbine oil	1-6	1-6	1-6	1-6
	-industrial oil	1-6	1-6	1-6	1-6
	-dark heating oil (crude oil)	1-6	1-6	1-6	1-6
	-dark diesel oil	1-6	1-6	1-6	1-6
	-dark gasoline	1-6	1-6	1-6	1-6
<b>5</b>	<b>Total capacity of heaters, kW</b>	1,98	5,28	5,28	-
<b>6</b>	<b>Rate capacity, kW</b>	5	8	13	8
<b>6.1</b>	<b>Power consumption without heating of kW/hour</b>	3	2,72	7,7	5
<b>7</b>	<b>Thickness of filters, micron</b>				
	-input	25 (10)	25(10)	25(10)	25(10)
	-output	5(3)	5(3)	5(3)	5(3)
<b>8</b>	<b>Voltage of the three-phase alternating current main with a frequency of 50 (60) Hz, In</b>	380	380	380	380
<b>9</b>	<b>Overall dimensions, mm not more</b>				
	-length-width-height	2600/1 400/20 30	4800/ 1480/ 2140	6060/ 2590/ 2440	4800/ 1480/ 2140
<b>10</b>	<b>Weight, kg not more</b>	1340	2550	5400	3400



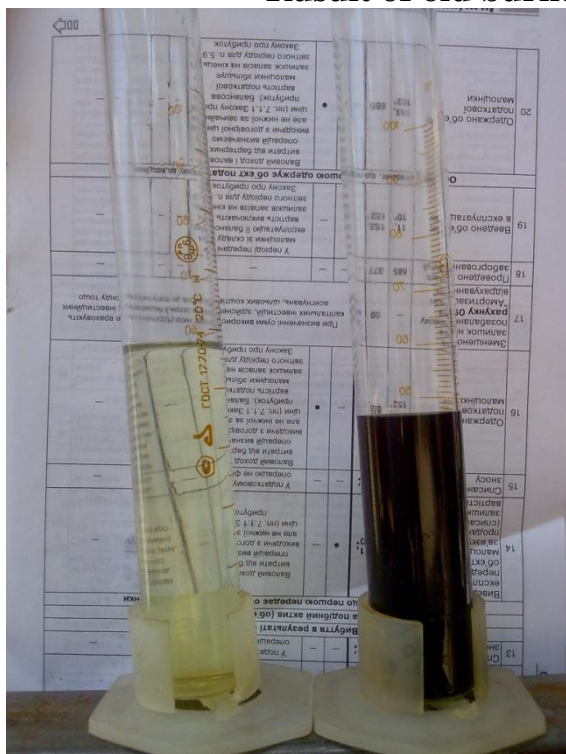
## Petroleum products regeneration results made by UVR plants



## Result of old and acidized transformer oil regeneration



## Rusult of old burned transformer oil regeneration

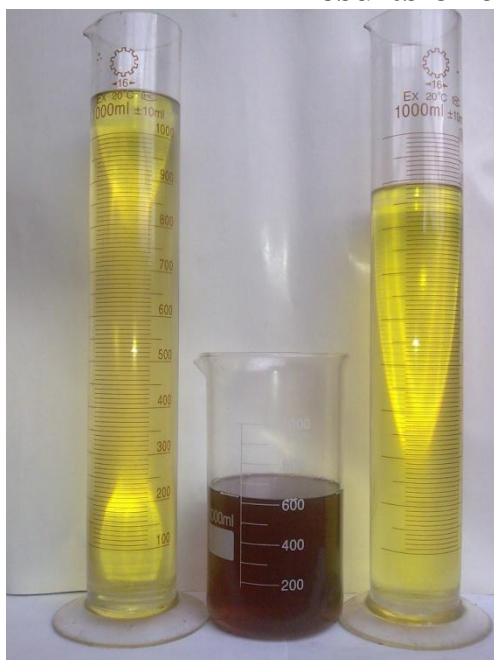


## Turbine oil regeneration results

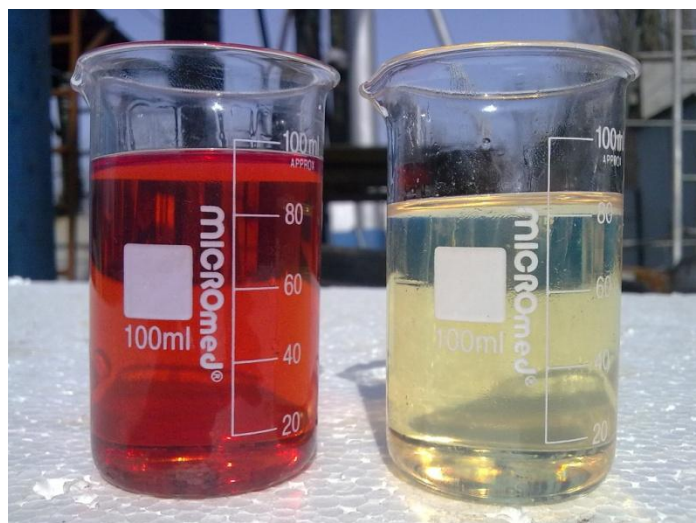
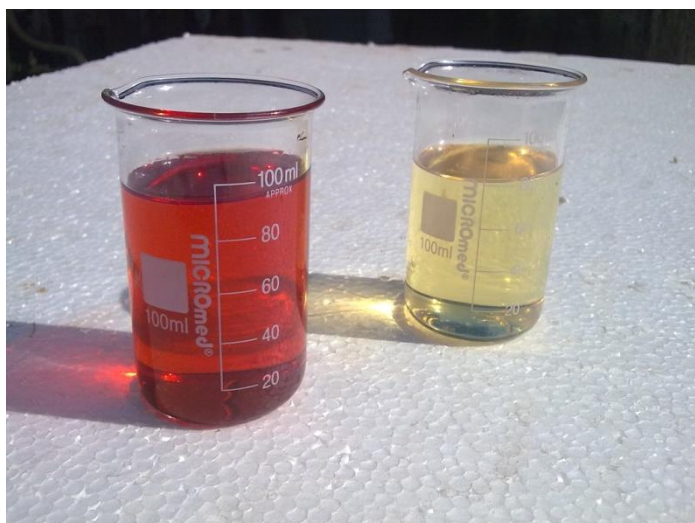
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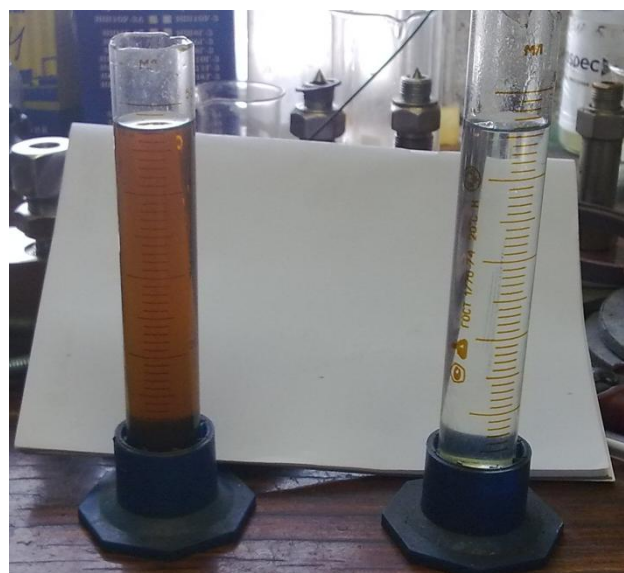
## Results of cleaning of petroleum fuels



**Dark heating oil reclamation results**

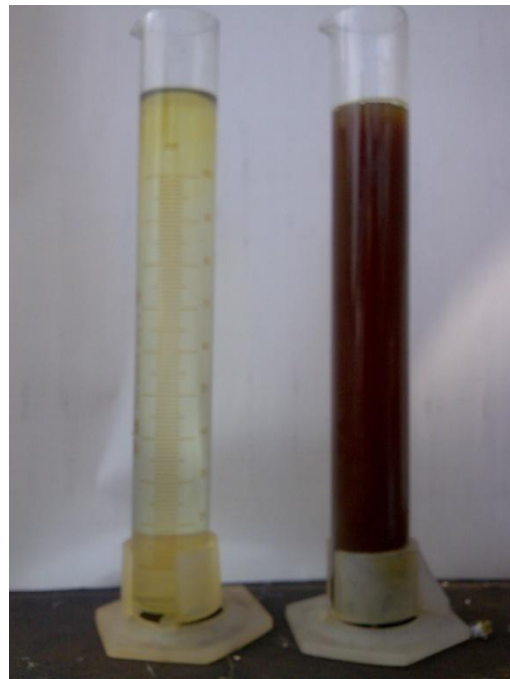


**Diesel fuel reclamation result (example of fuel was given by our clients)**



**Gas condensate reclamation results**

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**Oil regeneration results**



**Dark heating oil regeneration (type of oil – Coca-Cola)**



**Reclamation of acidized diesel fuel and removal of hydrosulfuric aromatic**



## Sorbent quantity

1. How many tons of sorbent you will need for regeneration of 1 ton of waste oil?

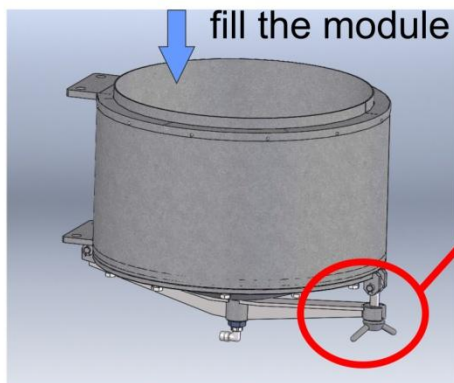
- 1-3% from 1 ton of sorbent for regeneration of 1 ton of **transformer oil** (10-30 kg)
- 2-4% from 1 ton of sorbent for regeneration of 1 ton of **turbine oil**
- 3-5% from 1 ton of sorbent for regeneration of 1 ton of **industrial oil (the same for vacuum oil)**
- 3-7% from 1 ton of sorbent for regeneration of 1 ton of **hydraulic oil**

**Price for the sorbent is USD 450/1000 kg.**

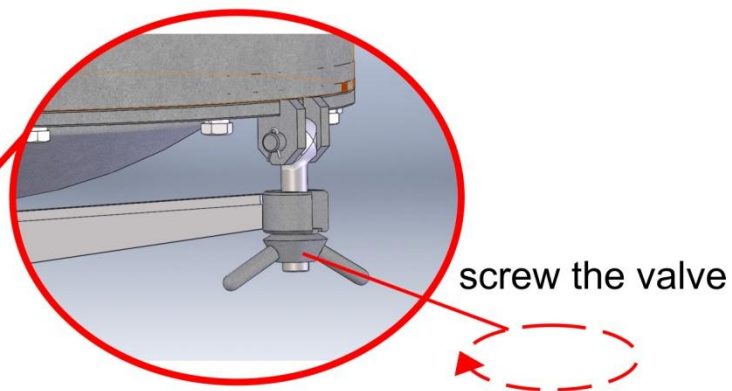
**Note:** The quantity of sorbent that you will need for 1 ton of waste oil regeneration depends from the degree of oil contamination. Before use the UVR units you can pretreat the oil by using the separator or the centrifuge or settle it.

**Figure 1.** How to fill the regeneration module by the sorbing agent

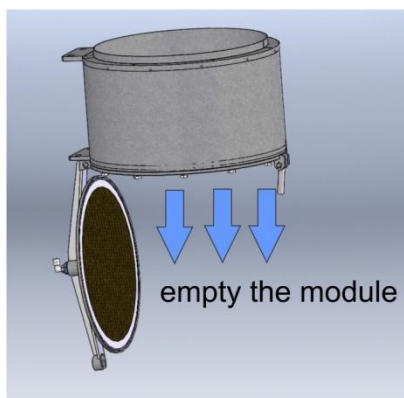
First step



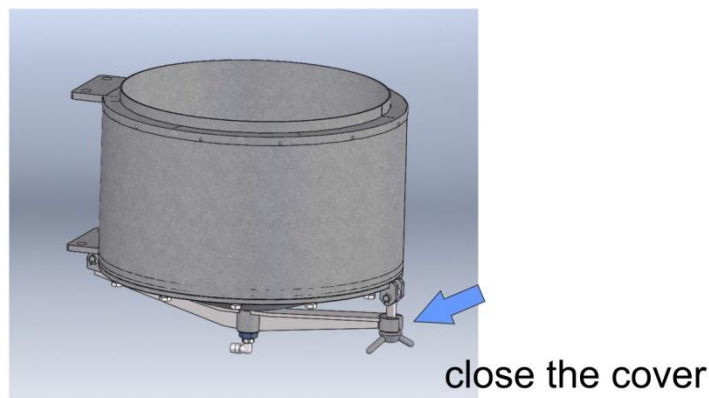
Second step (when you need to change the sorbent)



Third step



Fourth step



**Regeneration module (see fig.1)** is a vessel filled with regenerative powder, which regenerates the oil. Powder and oil enter the module through the top. Bottom part consists of: rubber hose containing regeneration powder, and bottom cover. Bottom cover is used for module vacuumizing, removal of oil after regeneration, and extraction of exhausted regeneration powder.

Regeneration module outer surface is wrapped with electric heating tape and heat insulator.

## Principle of operation

Pump sucks oil through input valve and through coarse filter, and directs it via valve goes through input filter into the **vessel**.

Level sensor turns off pump after filling the **vessel** to high level

To create vacuum (-0,9...-1 bar) in **lower tanks 1 & 2** turn on vacuum pump. Vacuum value in **lower tank I & II** is controlled by vacuum meters «**LOWER TANK I**» & «**LOWER TANK II**».

Oil is being discharged from the **upper tank**, through valves, to the **regeneration modules**. Regeneration goes on in the **regeneration modules**.

Open valves on the **collector**. Oil goes through adsorbent powder, which is in the low part of regeneration module, then oil flows into the collector, from the collector oil flows to the lower tank I or II. Oil level in lower tanks I & II is controlled by level indicator (welded in the vessel bottom) and by oil sensor.

Pump empties the oil after regeneration from lower tanks I or II and discharges it through the filter to station output.

**With the UVR 450/16 you will obtain the user manual. Technical specifications is also recorded on the video, by use it you can start up the unit without any problems**

## Spare parts

The price for the UVR 450/16 includes the price for the 1 set of spare parts.

**The standard set of spare parts consists of:**

1. fabric filter – 16 pieces
2. vacuum oil – 2 liters
3. form (cliche) for fabric filter cutting – 1 piece
4. protective cover – 2 pieces
5. track for sorbent discharge – 2 pieces
6. tube TRN-10 – 4 meters
7. fitting 6520-10 ½ - 4 pieces
8. camlock connection – 2 pieces
9. ringbolt ring – 4 pieces

**The expanded set of spare parts consists of standard set plus:**

10. filter 5 micron – 2 pieces
11. button B132 – 1 piece
12. fabric filter – 16 pieces

**The type of set depends from the country of delivery. You can also buy spare parts for UVR on your local market because we use accessories from world known manufacturers**

## Start-up

The unit is very simple to start-up. By following the user manual and video you can start the UVR without any problem and any engineers from our company.

## Packing

The UVR 450/16 can be load in one 20 feet container. The unit is shipped in special protective film (special casing), all parts of unit are fixed. We provided the shipment by using this packing to many countries such as Chili, Peru and other without any damages.

## Time of delivery

The time of delivery depends from the transport operator. In average it can take from 0.5 till 1 month.

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We guarantee the normal and stable operation of units. Warranty period is 12 months from the date of shipment. We also provide the post-warranty service.

You can be sure of the quality of our products. Hundreds companies from more than 75 countries are used GlobeCore plants for oil regeneration/purification

Here you can see some feedbacks about our products



### **Mr Shekanabo, the United Republic of Tanzania:**

“I can only say good things about GlobeCore mills. After seeing the production facility, I had no doubts that this is a serious and reliable company with professional staff, and the system works like a clock. Of course, the production itself seems complicated, but the equipment is powerful and rugged.”



### **Mr Janaki Ram, India**

The results of purification and lightening of petroleum products are amazing. We have already purchased and will continue to expand our stock of UVR units



### **Mr Yaser Ahmadi. Engineer. Electrical Company (Asia).**

Professional solution to the problem of transformer oil purification, filtration and degassing is the products of GlobeCore. I recommend looking into the company's offers.



**Mr HARRISON A. McCOY, III  
CEO, U S Energy Initiatives  
Corporation, Inc. (OTC:USEI),  
Hawaiian Islands**

“We have been observing operation of GlobeCore for many years: these guys really do make outstanding equipment for transformer oil regeneration in the field. Transformer’s can be services without the need to shut them down. 1 micron filtration and drying to 2 ppm are really impressive”



**Mr Patel, the United Republic of  
Tanzania:**

“I want to wish GlobeCore success in the future and I think we will maintain our cooperation for many more years. May you have as many successful products and new developments as possible.”

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